SCIENCE NEWS

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CLIMATIC CONDITIONS IN NEW GUINEA

THE approach of spring in the northern hemisphere will have little effect on the importance of New Guinea in the Pacific warfare. New Guinea lies too close to the equator to have marked seasonal changes. It is summer there all the time. The extreme northern point of the island is just to the south of the equator, the southern extremity is only 12 degrees south of it.

The snow-capped mountains in New Guinea prevent the high temperatures that one might expect so near the center of the torrid zone. A high mountain range extends almost from end to end of the island. It has many high peaks, several over 15,000 feet in height, and two at least with glaciers. There are lower ranges to the north and south. The coastal regions are the hottest parts of the country. They are covered with dense tropical jungle. On the higher mountain slopes and plateaus the vegetation is more like that of Europe and America. Above the snow-line, at an elevation of 14,500 feet, little or no vegetation exists. Except on the low coast lands and on the high mountains the temperature ranges from 72 to 92 degrees Fahrenheit daily, with very little variation throughout the year.

New Guinea is the largest island in the world, if Australia and Greenland are regarded as continents. It is approximately 1,500 miles in length. In area it is nearly three times the size of the British Isles. It contains an area about equal to that part of the United States north of the Potomac and Ohio Rivers and east of the Mississippi, not including Michigan and Wisconsin. It is even larger than Texas—about 20 per cent. larger.

In outline New Guinea resembles somewhat a gigantic lizard, looking westward, with its head almost touching the equator. Its shoulders are slightly hunched in the direction of Japan. Its tail, the part called Papua, extends toward the southeast, ridging up into the Owen Stanley Mountains. Port Moresby is on the south side, Buna on the north.

It is a sparsely populated country, with about as many persons in the entire area as are now in the District of Columbia. The population is estimated to be less than a million, of whom only about 10,000 are Europeans. The rest are mostly natives. Among them are some of the most primitive people in the world.

Agriculture and mining are the principal industries. Coconuts, cacao and coffee are the largest agricultural exports. New Guinea furnishes a considerable portion of the world's supply of gold. Natives are employed in the gold fields.

From Cape York Peninsula, Australia, it is but a hundred miles across the shallow Torres strait to the southern coast of New Guinea, and about 300 miles northeasterly to Moresby. From Moresby to Buna is approximately 100 miles by air, but considerably more by the circuitous route over and through the Owen Stanley Mountains.

New Guinea is cut up into three political divisions. The western half belongs to the Netherlands. The two eastern divisions are under British control. The southern part of it is Papua. The northeastern part and the neighboring islands are under Australian mandate.

Papua has about 90,000 square miles of territory, with 2,500 Europeans and 275,000 natives. Mandated northeast New Guinea, together with the Bismarck and Solomon Islands, includes 70,000 square miles of mainland and 23,300 square miles additional on the islands. Its capital is Rabaul, on New Britain, at present occupied by the Japanese. Its population includes about 6,000 Caucasians and 500,000 natives.

THE PROBABLE SPREAD OF TROPICAL DISEASES

A WORLD-WIDE spread of tropical diseases can be expected after the war, was stated by Colonel Thomas T. Mackie, of the Army Medical College. He described the problem at the National Conference on Planning for War and Postwar Medical Services held in New York City March 15 under the auspices of the Carlos Finlay Institute of the Americas.

The present war, Colonel Mackie said, is unlike any in history in the enormous potential hazard of disease to which populations may and probably will be exposed. The peak of the hazard will come after the war as armies that have become reservoirs of disease return home and as masses of people in oppressed and disease-ridden countries emigrate.

Besides furnishing food and clothing to relieve malnutrition, semi-starvation and destitution, the United Nations will be faced with the "imperative need for the effective control and treatment of disease" in occupied nations. Public health practice and the practice of clinical medicine will be affected in many parts of the world by the expected extensive migration of tropical diseases.

Tropical diseases do not stay in the tropics because of the climate. Malaria can and does occur in such far northern regions as Canada and the British Isles. Even such a strictly tropical disease as filariasis, popularly known as elephantiasis, has existed near Charleston, S. C.

Sanitation and personal hygiene are more important than climate in keeping these diseases out of temperate regions. But they can spread wherever mosquitoes, ticks or other insects that carry the germs exist, and many kinds of insects capable of carrying tropical disease germs are widely prevalent all over the world. Other kinds, never before known to carry these germs, may acquire that ability. Constant air transport between widely separated theaters of war may accidentally spread widely both disease-infected persons and the mosquitoes or other carriers of the disease.

SUNFLOWER-SEED OIL

SUNFLOWER-SEED oil, which may be obtained in large quantities from certain varieties of the common sunflower, is a possibility in the United States to help to fill the shortage in edible oils due to war conditions.

Imported olive oil, which came from Spain, France, Italy and French North Africa in pre-war days, is now available only in small quantities. Peanut oil and cottonseed oil are demanded in great volume for war purposes. Russian sunflower-seed oil is no longer obtainable. Argentine oils are filling only part of the need. Sunflower-seed oil produced at home would save shipping, supply the demand and develop a new source of income for the American farmer in post-war times.

American sunflowers grow luxuriantly in much of the country. Much of the seed finds its way into commerce, but largely as bird and poultry feed. Missouri raises the largest commercial crop, even exceeding Kansas where the sunflower is the state flower. California is also raising the seed for market.

Oil from sunflower seed was produced commercially in the United States a generation or so ago on a relatively small scale. The industry was discontinued because of the high labor costs when compared to labor costs in the other countries producing edible oils.

Dr. G. S. Jamieson, of the U. S. Department of Agriculture, states that land suitable for corn is suitable for sunflowers. The crop can be planted and cultivated with the same implements. New mechanized methods of harvesting, threshing and processing will make it a profitable crop for oil as well as for poultry feed. Argentina is showing us the way this can be done. It is now producing large quantities of sunflower-seed oil and shipping much of it to the United States. In 1932 it produced only about 5,000 tons. The Spanish War cut off Argentina's supply of olive oil, and it started to raise its own table oils from peanuts, cottonseed, rapeseed and sunflower seed. Now the amount made from the sunflower far exceeds that from all other sources together. According to the U. S. Department of Commerce, it is nearly 500,000 tons a year, one fourth of which is being sent to this country.

POTASSIUM IN FERTILIZERS DETERMINED BY RADIOACTIVITY

RADIOACTIVITY is now being used to determine the amount of potassium in fertilizers and other mixtures. The new method may completely replace the old chemical analysis method, until now the only general method in use. This is a laborious task taking hours to complete. The radioactivity method requires but a relatively short time. It is claimed to be accurate.

Radioactivity is a property possessed by certain substances, such as radium, of giving off spontaneously special rays or radiations that are invisible to the eye but which will pass through materials through which ordinary light will not pass. Potassium mixtures and compounds possess this property to a slight degree. In the new method the quantity of potassium present is determined by the intensity of the radioactivity of the mixture. The radioactivity is weak, but is measurable by extremely sensitive modern physical instruments.

The new method is the result of work by Dr. R. Bowling Barnes and Dr. D. J. Salley, of the American Cyanamid Company. A report on it was published recently by the American Chemical Society.

In the new method an instrument known as the Geiger counter is used. It was developed to measure radioactivity. The sample of the mixture containing potassium is dissolved in water, with or without the assistance of an acid, and introduced into a special glass cell which surrounds the Geiger counter tube. The tiny impulses caused by the radioactive changes in the potassium atoms of the sample actuates the counting apparatus.

ITEMS

THE city of Washington, D. C., which has become a crossroads for most of the world as well as the forty-eight states, enjoyed the healthiest year in its history during the first year of the present war, 1942, according to Dr. George C. Ruhland, District of Columbia health officer. Dr. Ruhland reported that: The infant mortality rate, one of the best indices of health in a community, was the lowest of all time, 44.6 infant deaths per 1,000 live births. The latest available national infant mortality rate was 45.3 in 1941. Maternal deaths dropped to 2.2 per 1,000 live births, compared with a national rate of 3.2 in 1941. The death rate from all 10 major disease causes of death except diabetes decreased during 1942. The general death rate of 10.8 per 1,000 population is the lowest in the history of the District of Columbia, having dropped from 11.8 in 1941. The birth rate of 25.1 per 1,000 population, with a total of 21,317 new Washingtonians arriving since Pearl Harbor, is the highest in at least 50 years.

MENINGITIS cases throughout the nation in the week ending March 6 reached the highest figure for any week since 1927. This does not include any cases in Indiana, still unreported, but does include 25 delayed case reports from the previous week. For the first nine weeks of this year the total number of cases has reached about 3,500. This figure, recorded in less than one fourth of the year so far, is one third of the total reported in 1929, when a total of 10,551 cases with 4,781 deaths was reported. No figures on deaths from meningitis this year are as yet available, but it is believed the sulfa drugs are saving many lives in the present outbreak. The peak of this outbreak should come some time this month, meningitis being a winter and spring disease chiefly. Last year, however, the number of weekly cases continued at a high level throughout the summer and early fall. It is impossible to predict whether that will happen this year. The outbreak is concentrated chiefly in the states along the Atlantic and Pacific coasts.

NYLON sutures will be used by surgeons this year to sew war wounds, replacing Jap silk formerly used, E. I. du Pont de Nemours and Company have announced. Millions of feet of the plastic filament formerly produced for tennis racquets and fishing leaders are now being made for surgical sutures and large quantities are being shipped to the medical deposits of the United Nations throughout the world. Nylon filaments are solid strands, in contrast to braided silk sutures. It is claimed that germs from infected tissue are not absorbed and can not travel through the nylon as sometimes occurs in braided material. The synthetic is also inert, non-irritating and does not fray or splinter. Satisfactory results have been reported from England where nylon sutures have been widely used on the victims of bombing.